

south lat. One would almost be inclined to regard this singular configuration of closed, almost concentric, lines of declination as the effect of a local character of that portion of the globe; but if, in the course of centuries, these apparently isolated systems should also advance, we must suppose, as in the case of all great natural forces, that the phenomenon arises from some general cause.

The horary variations of the declination, which, although dependent upon true time, are apparently governed by the Sun, as long as it remains above the horizon, diminish in angular value with the magnetic latitude of place. Near the equator, for instance, in the island of Rawak, they scarcely amount to three or four minutes, while they are from thirteen to fourteen minutes in the middle of Europe. As in the whole northern hemisphere the north point of the needle moves from east to west on an average from $8\frac{1}{2}$ in the morning until $1\frac{1}{2}$ at mid-day, while in the southern hemisphere the same north point moves from west to east,* attention has recently been drawn, with much justice, to the fact that there must be a region of the Earth between the terrestrial and the magnetic equator where no horary deviations in the declination are to be observed. This fourth curve, which might be called the *curve of no motion*, or, rather, *the line of no variation of horary declination*, has not yet been discovered.

The term *magnetic poles* has been applied to those points of the Earth's surface where the horizontal power disappears, and more importance has been attached to these points than properly appertains to them;† and in like manner, the curve, where the inclination of the needle is null, has been termed the *magnetic equator*. The position of this line and its secular change of configuration have been made an object of careful investigation in modern times. According to the admirable work of Duperrey,‡ who crossed the magnetic equator six times between 1822 and 1825, the nodes of the two equators, that is to say, the two points at which the line without inclination intersects the terrestrial equator, and consequently passes from one hemisphere into the other, are so unequally placed, that in 1825 the node near the island of St. Thomas, on the west-

* Arago, in the *Annuaire*, 1836, p. 284, and 1840, p. 330-338.

† Gauss, *Allg. Theorie des Erdmagnet.*, § 31.

‡ Duperrey, *De la Configuration de l'Equateur Magnétique*, in the *Annales de Chimie*, t. xlv., p. 371 and 379. (See, also, Morlet, in the *Mémoires présentés par divers Savans à l'Acad. Roy. des Sciences*, t. iii., p. 132.)